

Patent Office

1 1. An eyesafe, Q-switched, laser system for target
2 identification, ranging, and gated viewing, said laser system
3 having a number of diodes for optical pumping, comprising: a
4 resonant pumped erbium (RPE) laser having a storage lifetime
5 that minimizes said number of diodes needed to pump said Er
6 laser, said RPE laser being in band to I² devices.

1 2. The eyesafe, Q-switched laser system in accordance
2 with claim 1, further comprising dilute concentrations of
3 unsensitized Erbium in an approximate range between 0.1 and 2%
4 of active ion, and having a lifetime of ~10msec for a 1.5
5 micron transition.

1 3. The eyesafe, Q-switched laser in accordance with
2 claim 2, further comprising an Erbium crystalline or glass
3 host pumped by 1.5 micron diodes or diode pumped Yb-Er glass
4 lasers.

1 4. The eyesafe, Q-switched laser system in accordance
2 with claim 1, further comprising an energy/pulse between ~250
3 and 300mJ.

1 5. The eyesafe, Q-switched laser system in accordance
2 with claim 1, wherein said Erbium laser further comprises a
3 wavelength of ~1.5 microns.

6. The eyesafe, Q-switched laser system in accordance with claim 2, wherein said number of diodes pump ~30 to 60W at 1.5 microns wavelength for ~10ms.

7. An eyesafe, Q-switched, laser system or gain medium for target identification, ranging, gated viewing, and for amplifying fiber communications links, said laser comprising: a resonant pumped erbium (RPE) laser having a storage lifetime that minimizes said number of diodes needed to pump said optical parametric oscillators, said RPE laser being in band I² devices, and that permits the attainment of gain coefficients of 0.5-1cm⁻¹.

8. The eyesafe, Q-switched laser system or gain medium in accordance with claim 7, further comprising dilute concentrations of unsensitized erbium in a range of ~0.1 and 2% of active ion, and having a lifetime of ~10 msec for a 1.5 micron transition.

9. The eyesafe, Q-switched laser system or gain medium in accordance with claim 8, further comprising an erbium crystalline or glass host material pumped by 1.5 micron diodes or Yb-Er glass laser.

